

CLAIMS

What is claimed is:

1 1. A surface metrology device, comprising:

2 a metrology unit receiving information from a measurement region of a surface; and

3 a first imaging camera with a first field-of-view containing the measurement region.

1 2. A semiconductor processing device, comprising:

2 a wafer process station; and

3 a metrology station apart from but coupled to the process station wherein the

4 metrology station comprises an ultraviolet light source illuminating a measurement region of a

5 surface.

200 - 400 nm

1 3. A semiconductor processing device, comprising:

2 a wafer process station; and

3 a metrology station apart from but coupled to the process station wherein the

4 metrology station comprises an ultraviolet light source illuminating a measurement region of a

5 surface and at least one spectrograph optically coupled to the measurement region of the

6 surface.

1 4. A semiconductor processing device, comprising:

2 a wafer process station; and

3 a metrology station apart from but coupled to the process station wherein the
4 metrology station comprises a wafer support for rotating the wafer with respect to the
5 metrology station.

1 5. A surface reflectometer, comprising:

2 a light source;
3 an objective optic, adapted to translate relative to a wafer surface; and
4 at least one light detector.

1 6. The surface metrology device of Claim 2, wherein the measurement region is wetted by a
2 liquid.

1 7. The surface metrology device of Claim 2, wherein the metrology ~~unit~~ comprises optical
2 elements that include curved substantially reflective surfaces. *station* ?

1 8. The surface metrology device of Claim 3, wherein the measurement region is wetted by a
2 liquid.

1 9. The surface metrology device of Claim 4, wherein the measurement region is wetted by a
2 liquid.

1 10. The surface metrology device of Claim 5, wherein a measurement region of the wafer
2 surface is wetted by a liquid.

1 11. The surface metrology device of Claim 1, further comprising at least one controllable
2 translation stage coupled to the metrology unit to change the location of the measurement
3 region on the surface.

1 12. The surface metrology device of Claim 11, wherein the at least one translation stage is a
2 direct drive translation stage.

1 13. The surface metrology device of Claim 1, further comprising a rotatable chuck coupled to
2 the surface.

1 14. The surface metrology device of Claim 1, wherein the surface and metrology unit are
2 configured to have 4 degrees of freedom of movement relative to each other.

1 15. The surface metrology device of Claim 1, further comprising a second imaging camera
2 with a second field-of-view.

1 16. The surface metrology device of Claim 15, wherein the second field-of-view is smaller
2 than the first field of view.

1 17. The surface metrology device of Claim 16, wherein the second field-of-view contains the
2 measurement region.

1 18. The surface metrology device of Claim 1, wherein the metrology unit is a film thickness
2 measuring unit.

1 19. The surface metrology device of Claim 1, wherein the metrology unit is a surface profile
2 measuring unit.

1 20. The surface metrology device of Claim 1, wherein the metrology unit is an ellipsometer.

1 21. The surface metrology device of Claim 1, wherein the surface is wetted by a liquid.

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